

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 5 1. (Currently Amended) A carrier recovery system comprising:
 an in-phase mixer for mixing an incoming signal with an in-phase reference signal
 to produce an in-phase baseband signal;
 a quadrature-phase mixer for mixing the incoming signal with a quadrature-phase
 reference signal to produce a quadrature-phase baseband signal;
10 a DC detector for measuring a DC offset of the quadrature-phase baseband signal;
 and
 a frequency synthesizer for generating the in-phase reference signal and the
 quadrature-phase reference signal according to the DC offset measured by the
 DC detector;
15 wherein the DC detector comprises an adder, a delay unit and a multiplier.
2. (Original) The carrier recovery system of claim 1, wherein the carrier recover
 system locks the quadrature-phase reference signal and the in-phase reference signal
 to a selected channel in an Advanced Television Systems Committee (ATSC) digital
20 television (DTV) receiver.
3. (Original) The carrier recovery system of claim 1, wherein the incoming signal
 corresponds to a received vestigial sideband (VSB) signal.
- 25 4. (Original) The carrier recovery system of claim 1, wherein the frequency
 synthesizer generates the in-phase reference signal and the quadrature-phase
 reference signal to minimize the DC offset of the quadrature-phase baseband signal.

5. (Original) The carrier recovery system of claim 1, wherein the quadrature-phase mixer comprises a first low-pass filter receiving the quadrature-phase baseband signal for filtering out the high frequency term of the quadrature-phase baseband signal.
- 5 6. (Original) The carrier recovery system of claim 1, wherein the frequency synthesizer comprises a second low-pass filter coupled to the DC detector and the frequency synthesizer.
- 10 7. (Original) The carrier recovery system of claim 6, wherein the second low-pass filter is a loop filter.
8. (Currently Amended) The carrier recovery system of claim 1, ~~wherein the DC detector comprises:~~
- 15 ~~an~~ wherein the adder is used for adding the quadrature-phase baseband signal to a feedback signal for producing an added value;
a wherein the delay unit coupled to the adder is used for generating an output being the added value delayed by a predetermined time; and
a wherein the multiplier coupled to the delay unit is used for multiplying the output
- 20 of the delay unit by a predetermined coefficient to produce the feedback signal.
9. (Currently Amended) The carrier recovery system of claim ~~[[8]]~~ 1, wherein the predetermined coefficient is a value less than one.
- 25 10. (Original) The carrier recovery system of claim 1, wherein the in-phase mixer comprises a third low-pass filter receiving the in-phase baseband signal for filtering out a high frequency term of the in-phase baseband signal.

11. (Currently Amended) A method of carrier recovery comprising:
mixing an incoming signal with an in-phase reference signal to produce an in-phase
baseband signal;
mixing the incoming signal with a quadrature-phase reference signal to produce a
5 quadrature-phase baseband signal;
measuring a DC offset of the quadrature-phase baseband signal; and
generating the in-phase reference signal and the quadrature-phase reference signal
according to the DC offset of the quadrature-phase baseband signal;
wherein measuring the DC offset of the quadrature-phase baseband signal
10 comprises:
adding the quadrature-phase baseband signal and a feedback signal to produce an
added value;
delaying the added value by a predetermined time; and
multiplying the delayed added value by a predetermined coefficient to produce the
15 feedback signal.
12. (Original) The method of claim 11, further comprising locking the quadrature-phase
reference signal and the in-phase reference signal to a selected channel in an
Advanced Television Systems Committee (ATSC) digital television (DTV) receiver.
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13. (Original) The method of claim 11, wherein the quadrature-phase reference signal is
the in-phase reference signal phase-delayed by ninety degrees.
14. (Original) The method of claim 11, wherein the incoming signal corresponds to a
25 received vestigial sideband (VSB) signal.
15. (Original) The method of claim 14, wherein the DC offset of the quadrature-phase
baseband signal is caused by to a pilot tone of the VSB signal for a selected carrier.

16. (Original) The method of claim 11, further comprising generating the in-phase reference signal and the quadrature-phase reference signal to minimize the DC offset of the quadrature-phase baseband signal.
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17. (Original) The method of claim 11, further comprising filtering out a high frequency term of the quadrature-phase baseband signal.
18. (Original) The method of claim 11, further comprising filtering out a high frequency term of the in-phase baseband signal.
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19. (Canceled)
20. (Currently Amended) The method of claim ~~[[19]]~~11, wherein the predetermined coefficient is a value less than one.
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